



High Precision Planetary Gearheads for Servo motors

SPI Series

- ▶ Spur Gear
- ▶ Compact size
- ▶ High Precision, High Durability
- ▶ High Efficiency
- ▶ Easy Mount
- ▶ Protection grade IP65

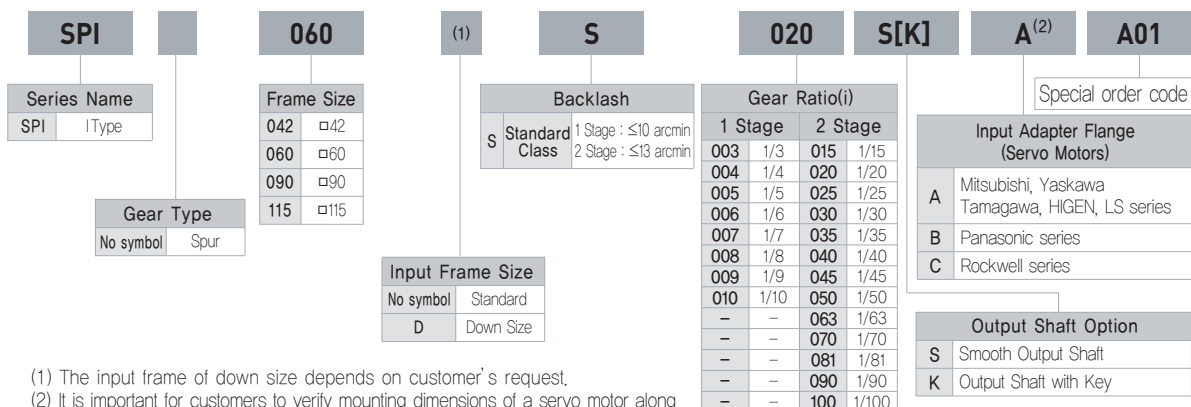
Specifications

Description	Unit	Stage	Ratio (i)	Model No.						
				SPI 042	SPI 060	SPI 060D	SPI 090	SPI 090D	SPI 115	SPI 115D
Nominal Output torque $T_{2N}^{(2)}$	Nm	1	3	15	46	—	110	—	190	—
			4	14	35	—	102	—	205	—
			5	19	42	—	112	—	235	—
			6	—	46	—	103	—	—	—
			7	14	38	—	100	—	210	—
			8	—	46	—	102	—	—	—
			9	14	34	—	96	—	160	—
			10	10	29	—	80	—	191	—
			15	15	46	46	110	110	190	190
			20	14	35	35	102	102	205	205
		25	19	42	42	112	112	235	235	
		30	15	46	46	110	112	190	235	
		35	19	42	42	112	112	235	235	
		40	14	35	35	102	112	205	235	
		45	19	42	42	112	112	235	235	
		50	19	42	42	112	112	235	235	
		63	14	38	38	100	100	210	210	
		70	14	38	38	100	100	210	210	
81	14	34	34	96	96	160	160			
90	14	34	34	96	96	160	160			
100	10	29	29	80	80	191	191			
Max Acceleration torque T_{2B}	Nm	1,2	3~100	3 times of Nominal Output torque						
Nominal Input speed n_1	rpm	1,2	3~100	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Max. Input speed N^1	rpm	1,2	3~100	6,000	6,000	6,000	5,000	5,000	5,000	5,000
Backlash (Standard class)	arcmin	1	3~10	≤ 10	≤ 10	—	≤ 10	—	≤ 10	—
		2	15~100	≤ 13	≤ 13	≤ 13	≤ 13	≤ 13	≤ 13	≤ 13
Torsional Rigidity	Nm/arcmin	1,2	3~100	2	3	3	12	12	23	23
Max. Radial load $F_r \max^{(2)}$	N	1,2	3~100	400	1,100	1,100	2,400	2,400	4,000	4,000
Max. Axial load $F_a \max^{(2)}$	N	1,2	3~100	300	600	600	1,800	1,800	2,500	2,500
Service life (2)	hr	1,2	3~100	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Noise level (3)	dB(A)	1,2	3~100	≤ 56	≤ 58	≤ 58	≤ 60	≤ 60	≤ 63	≤ 63
Weight	kg	1	3~10	0.5	1.2	—	3.2	—	7.2	—
		2	15~100	0.7	1.7	1.3	4.7	3.6	11.0	8.4
Mass Moment of Inertia (4)	kg cm^2	1	3~10	0.04	0.15	—	0.8	—	2.8	—
		2	15~100	0.03	0.07	0.07	0.5	0.5	1.5	1.5
Operating Temp. (5)	°C	1,2	3~100	-10 ~ +90						
Lubrication		1,2	3~100	High temperature & Extreme pressure Lubricant						
Mounting position		1,2	3~100	All directions						
Efficiency η	%	1	3~10	≥ 97						
		2	15~100	≥ 94						
Degree of protection		1,2	3~100	IP 65						

(1) Ratio = N_{in} / N_{out} (2) Values were measured at the following conditions : 100 rpm at the output, Load applied to the middle of the output shaft, Load coefficient (K_a) = 1, Continuous operation ($S_1=10,000$ hrs), (3) Noise level : A measurement 1m away from the gear head, 3000 input rpm and at no load condition, (Background noise 21dB(A)) (4) Moment of inertia : A measurement at the input shaft and representatives from each ratio.(i=1/5) (5) Operating temperature : Surface temperature of gear case in $-10^\circ\text{C} \sim 40^\circ\text{C}$ of ambient temperature.

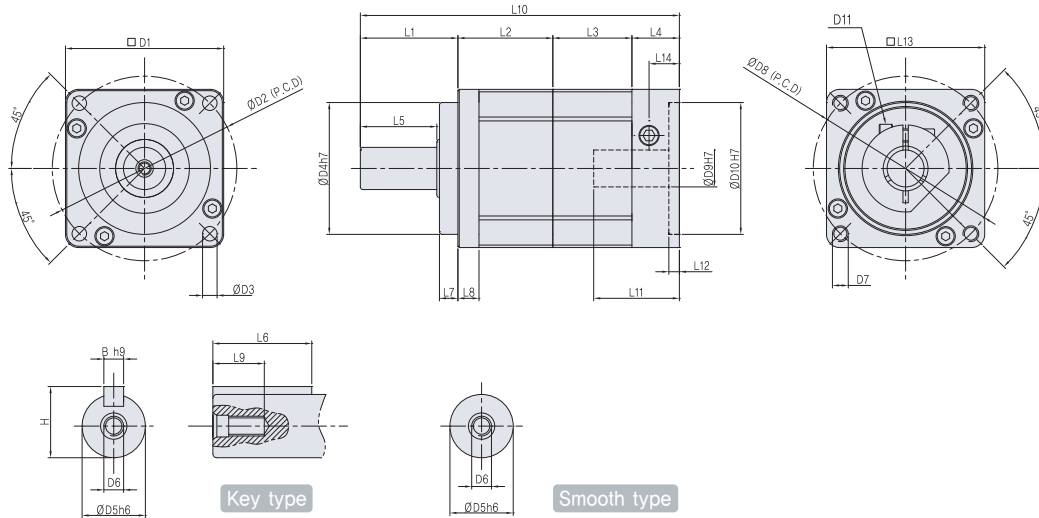
※ The data in the above table are representative values, Specifications are subject to change without notice to improve product performances.

Coding System



Planetary Gearheads

■ Dimensions (1 Stage, Ratio(i) = 1/3 ~ 1/10)



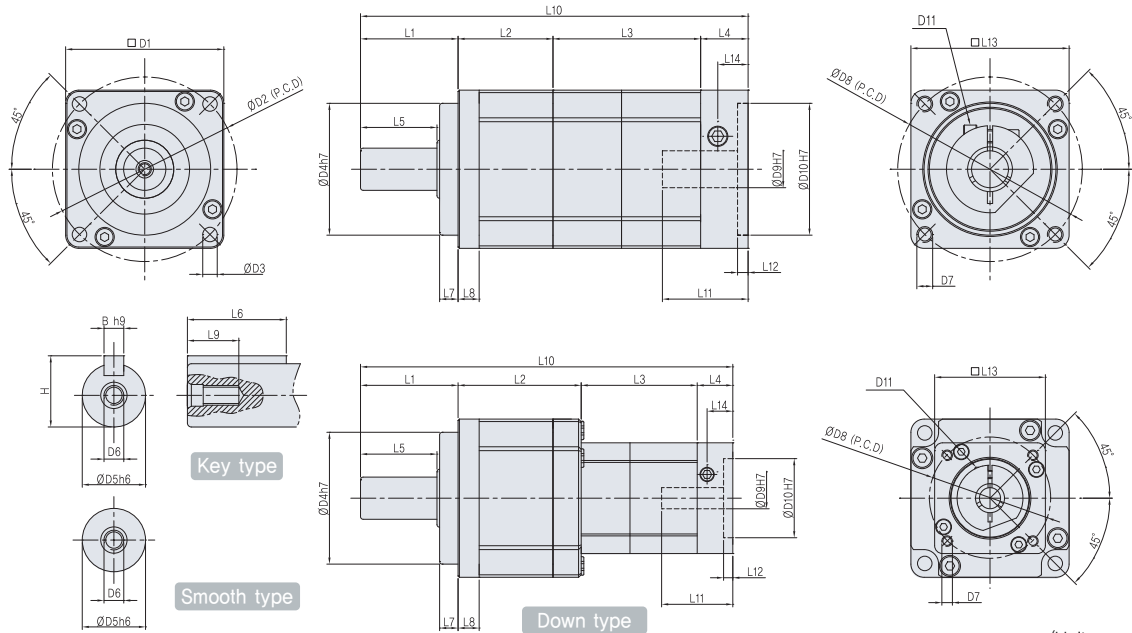
(Unit : mm)

Dimension \ Model	SPI 042	SPI 060	SPI 090	SPI 115
D1	42	60	90	115
D2	50	70	100	130
D3	3.4	5.5	6.5	9
D4 h7	35	50	80	110
D5 h6	13	16	22	32
D6	M4xP0,7	M5xP0,8	M8xP1,25	M12xP1,75
D7	A	M4 DP 8	M6 DP 12	M8 DP 20
	B	M3 DP 6	M5 DP 12	-
	C	M4 DP 8	M6 DP 12	-
D8	A	46	70	90
	B	45	70	90
	C	46	70	90
D9 H7	≤8	≤14	≤19	≤32
D10 H7	30	50	70	110
D11	M3	M5	M5	M8
L1	24,5	37	46	65
L2	28,5	36	49	59
L3	25,5	30	34	40
L4	A, B	13,5	18	42
	C	17	22,5	-
	L5	19,5	29	36,5
L6	16	25	32	45
L7	4	7	8	12
L8	7	8	10	14
L9	13	13	19	28
L10	A, B	92	121	147
	C	95,5	125,5	152
	L11	27	32,5	42,5
L11	A, B	27	32,5	42,5
	C	30,5	37	47,5
	L12	3,5	4	4
L13	42	60	90	
L14	A, B	8,3	11,5	11,5
	C	11,8	16	16,5
	B h9	5	5	6
H	15	18	24,5	35

- Note) 1. Specifications are subject to change without notice to improve product performances.
 2. The values of D7 through D11 and L10 through L14 on the above table may vary by servo motor.
 3. CAD files are available to download from website(www.spg.co.kr).

SPI Series

■ Dimensions (2 Stage, Ratio(i) = 1/15 ~ 1/100)



(Unit : mm)

Dimension \ Model	SPI 042	SPI 060	SPI 060D	SPI 090	SPI 090D	SPI 115	SPI 115D	
D1	42	60	60	90	90	115	115	
D2	50	70	70	100	100	130	130	
D3	3.4	5.5	5.5	6.5	6.5	9	9	
D4 h7	35	50	50	80	80	110	110	
D5 h6	13	16	16	22	22	32	32	
D6	M4xP0.7	M5xP0.8	M5xP0.8	M8xP1.25	M8xP1.25	M12xP1.75	M12xP1.75	
D7	A	M4 DP 8	M4 DP 8	M6 DP 12	M5 DP 12	M8 DP 20	M6 DP 12	
	B	M3 DP 6	M4 DP 12	M3 DP 6	M5 DP 12	-	M5 DP 12	
	C	M4 DP 8	M5 DP 12	M4 DP 8	M6 DP 12	M5 DP 12	M6 DP 12	
D8	A	46	70	46	90	70	145	90
	B	45	70	45	90	70	-	90
	C	46	70	46	90	70	-	90
D9 H7	≤8	≤14	≤8	≤19	≤14	≤32	≤19	
D10 H7	30	50	30	70	50	110	70	
D11	M3	M5	M3	M5	M5	M8	M5	
L1	24.5	37	37	46	46	65	65	
L2	28.5	36	46.7	49	65	59	80	
L3	50.5	56	44	72	51.5	90	65.7	
L4	A, B	13.5	18	13.5	18	42	18	
	C	17	22.5	17	23	22.5	23	
L5	19.5	29	29	36.5	36.5	51	51	
L6	16	25	25	32	32	45	45	
L7	4	7	7	8	8	12	12	
L8	7	8	8	10	10	14	14	
L9	13	13	13	19	19	28	28	
L10	A, B	117	147	141.2	185	180.5	256	228.7
	C	120.5	151.5	144.7	190	185	-	233.7
L11	A, B	27	32.5	27	42.5	32.5	67	42.5
	C	30.5	37	30.5	47.5	37	-	47.5
L12	3.5	4	3.5	4	4	7	4	
L13	42	60	42	90	60	130	90	
L14	A, B	8.3	11.5	8.3	11.5	11.5	27.5	11.5
	C	11.8	16	11.8	16.5	16	-	16
B h9	5	5	5	6	6	10	10	
H	15	18	18	24.5	24.5	35	35	

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